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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/820,259 Confirmation No.: 7506
Applicant(s): Mott et al.
Filed: 4/7/2005
Art Unit: 1732
Examiner: Ortiz, Angela Y.
Title: Integrated Flange Seal Electrical Connection
Attorney Docket No.: 003C.0004.U2 (US)
Customer No.: 29,683

Commissioner For Patents
P.O. Box 1450
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Appeal Brief

Sir:

This is an appeal brief in regard to the final rejection of claims in the above-identified patent application. A Notice of Appeal was mailed to the USPTO on 11/1/2005. The fee under 37 C.F.R. §41.20(b)(2) is enclosed. Please charge deposit account 50-1924 for any fee deficiency.

I. Real Party In Interest

The real party in interest is FCI Americas Technology, Inc.

II. Related Appeals and Interferences

There are no directly related appeals or interferences regarding this application.

III. Status Of Claims

Claims 7, 9-12, 18-22, and 25-32 are pending in this application. Claims 18, 20-22, 25-28 and 30-32 have been rejected by the Examiner. Claims 7 and 9-12 have been allowed. Claims 19 and 29 have been objected to. The rejection of Claims 18, 20-22, 25-28 and 30-32 is appealed.

IV. Status Of Amendments

Since the final rejection of 07/05/2005 no amendments have been filed.

V. Summary of Claimed Subject Matter

A method of forming an electrical connector (page 7, lines 20-21) is provided comprising providing an electrical conductor 21 having a plurality of ribs 25 (page 5, lines 11-12) and a jacketing forming the connector 40 (see Fig. 6, and page 7, lines 20-26). A first tortuous path is provided between the conductor and the jacketing (page 5, lines 17-20, among other places). A flange is over-molded onto the connector 40 to produce a flange electrical connector 100 (page 7, lines 11-16, and page 10, lines 17-20, among other places). A second tortuous path is provided between the connector 40 and the flange overmolded onto the connector 40 (page 7, lines 30-33, among other places). The two tortuous paths impede passage of hydrocarbon based fuel components between the conductor and the jacketing, and between the jacketing and the flange.

VI. Grounds of Rejection to be Reviewed on Appeal

Are claims 18, 20-22, 25-28 and 30-32 properly rejected under 35 U.S.C. §103(a) as being unpatentable over Onoda (US 6,187,242) in view of Bickford et al. (US 6,506,083)?

VII. Argument

Claim 18

Claim 18 is a method claim. The method is a method for forming a fuel flange. The method includes forming two tortuous paths; a first tortuous path between the electrical connector and the connector body, and a second tortuous path between the connector body and the fuel flange. The electrical conductor has first ribs that form the first tortuous path when the connector body is formed around the electrical conductor. The connector body comprises a substantially uniform series of second ribs looping around an exterior of the connector body which, in combination with the fuel flange, form the second tortuous path when the fuel flange is molded around the connector body. The method features of claim 18 are not disclosed or suggested in the cited art.

The examiner stated that the mere provision of the "rib feature" does not give patentable weight. The examiner clarified his examination in the Advisory Action mailed 10/24/2005 indicating that the cited art shows the feature. Thus, it appears that the examiner is merely using the term "patentable weight" incorrectly in the record. The rib

features claimed in the claims are in regard to method steps of forming the second tortuous path. Claim 18 claims forming a connector body with second ribs comprising a substantially uniform series of ribs looping around an exterior of the connector body. Claim 18 further claims molding the fuel flange around the connector body for forming the second tortuous path; the second ribs (the substantially uniform series of ribs looping around an exterior of the connector body) defining the second tortuous path. These combination of method steps relating to the "rib" feature are not disclosed or suggested in the cited art. These method steps are entitled to patentable weight and should not be ignored. Failure to give these steps patentable weight is a failure to review the claim as a whole.

It is not obvious to combine Bickford et al. with Onoda. There appears to be nothing in the cited art to suggest why a person skilled in the art would combine Bickford et al. with Onoda. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. (see MPEP 2143.01, page 2100-98, column 1). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination (see MPEP 2143.01, page 2100-98, column 2). In the present case, there appears to be no teaching, suggestion, or motivation to combine the teachings of Bickford et al. with Onoda.

Even if, for the sake of argument, it is considered obvious, this still would not result in applicants' invention as claimed in claim 18. Claim 18 claims forming a **connector body with a substantially uniform series of ribs looping around an exterior of the connector body**. Claim 18 claims molding the fuel flange around the connector body at the ribs to form a second tortuous path. Neither Bickford et al. nor Onoda disclose or suggest forming a connector body with a substantially uniform series of ribs looping around an exterior of the connector body. Neither Bickford et al. nor Onoda disclose or suggest molding a fuel flange around the connector body at the substantially uniform series of ribs to form a second tortuous path.

There is no disclosure or suggestion in Onoda of the ribs 8a, 10a, 10b looping around an exterior of the body 6. There is no disclosure or suggestion in Bickford et al. of ribs looping around an exterior of the body 14.

As the examiner has pointed out, Bickford et al. discloses threaded surface 28. However, this is for screwing the insulating body 14 into the bulkhead 26. There is no disclosure or suggestion of **overmolding** a fuel flange on the threaded surface 28. Overmolding a member onto the screw threads 28 would defeat the purpose of the screw threads; to allow the body 14 to be screwed into the threads 30 of the bulkhead 26 (see Fig. 3). Thus, it would not be obvious for a person skilled in the art to use screw threads 28 for forming a tortuous path with an overmolded fuel flange. There appears to be no suggestion to provided screw threads 28 of Bickford et al. on body 36 of Onoda. This is because the body 37 in

Onoda is overmolded onto the body 36; not screwed into the body 37. Therefore, it does not appear to be obvious to combine Bickford et al. with Onoda as the examiner has attempted to do. The features of claim 18 are not disclosed or suggested in the art of record. Therefore, claim 18 is patentable and should be allowed.

Claim 20

The cited art does not disclose or suggest electrical insulating material comprising polyoxymethylene. Therefore, claim 20 is patentable and should be allowed.

Claim 21

Claim 21 claims impregnating a coating over the connector body. The cited art does not disclose or suggest impregnating a coating over the connector body 6 in Onoda or 14 in Bickford et al. Therefore, claim 21 is patentable and should be allowed.

Claim 22

Claim 22 claims that the coating comprises dimethylacrylate. The cited art does not disclose or suggest a coating comprises dimethylacrylate. Therefore, claim 22 is patentable and should be allowed.

Claim 25

Claim 25 claims a method of forming a vehicle fuel tank combined fuel flange and electrical connector. The method includes overmolding a flange member onto the pre-mold electrical connector, wherein the pre-mold housing comprises a

series of circumferential ribs on an exterior side which form a second tortuous joint between the flange member and the pre-mold electrical connector. This is in combination with molding the pre-mold housing with first tortuous joints with electrical conductors. Nowhere in the cited art is there a disclosure or suggestion of body 36 of Onoda having a series of circumferential ribs on an exterior side which, when the body 37 is molded on the body 36, form a second tortuous joint. In regard to threaded surface 28 of Bickford et al., this is for screwing the insulating body 14 into the bulkhead 26. There is no disclosure or suggestion of overmolding a fuel flange on the threaded surface 28. Overmolding a member onto the screw threads 28 would defeat the purpose of the screw threads; to allow the body 14 to be screwed into the threads 30 of the bulkhead 26 (see Fig. 3). Thus, it would not be obvious for a person skilled in the art to use screw threads 28 for forming a tortuous path with an overmolded fuel flange. There appears to be no suggestion to provided screw threads on body 36 of Onoda because in Onoda the body 37 is overmolded onto the body 36; not screwed into the body 37. Therefore, it does not appear to be obvious to combine Bickford et al. with Onoda as the examiner has attempted to do. The features of claim 25 are not disclosed or suggested in the art of record. Therefore, claim 25 is patentable and should be allowed.

Claims 26-28 stand or fall with claim 25.

Claim 30

Claim 30 claims impregnating the pre-mold housing with a sealing material. The cited art does not disclose or suggest

impregnating the pre-mold housing with a sealing material. Therefore, claim 30 is patentable and should be allowed.

Claim 31

Claim 31 claims that the step of impregnating occurs before the flange member is overmolded onto the pre-mold electrical connector. The cited art does not disclose or suggest impregnating, much less impregnating which occurs before the flange member is overmolded onto the pre-mold electrical connector. Therefore, claim 31 is patentable and should be allowed.

Claim 32

Claim 32 claims that the step of impregnating comprises use of a material which remains substantially uncured in the presence of air. The cited art does not disclose or suggest impregnating, much less use of a material which remains substantially uncured in the presence of air. Therefore, claim 31 is patentable and should be allowed.

VIII. Claims Appendix

Attached.

IX. Evidence Appendix

None.

X. Related Proceedings Appendix

None.

Conclusion

In view of the arguments presented above, it is respectfully requested that the Examiner's rejections of Claims 18, 20-22, 25-28 and 30-32 be reversed.

Respectfully submitted,

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CERTIFICATE OF MAILING

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12/12/2005
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Clair L. Brown
Name of Person Making Deposit



Claims 1-6 (Cancelled)

7. A method for forming an electrical connector, the method comprising:

providing at least one electrical conductor comprising a first plurality of ribs;

jacketing said at least one electrical conductor with an electrical insulating material to form a connector body, wherein said first plurality of ribs defines a first tortuous path with said electrical insulating material for impeding the passage of fluid, said connector body comprising a second plurality of ribs for defining a second tortuous path for impeding passage of fluid between said connector body and a surrounding structure within which at least a portion of said connector body is disposed after said connector body is formed, wherein said second plurality of ribs comprise melt ribs formed when said second plurality of ribs is formed.

8. (Cancelled)

9. The method as in claim 7, wherein said electrical insulating material comprises polyoxymethylene.

10. The method as in claim 7, wherein said fluid comprises a hydrocarbon based fuel.

11. The method as in claim 7, further comprising:

impregnating a coating onto the connector body.

12. The method as in claim 11, wherein said coating comprises dimethylacrylate.

Claims 13-17 (Cancelled)

18. A method for forming a fuel flange, the method comprising:

providing at least one electrical conductor comprising a first plurality of ribs;

jacketing said at least one electrical conductor with an electrical insulating material to form a connector body, said first plurality of ribs defining a first tortuous path with said electrical insulating material for impeding the passage of hydrocarbon based fuel components, said connector body comprising a second plurality of ribs comprising a substantially uniform series of ribs looping around an exterior of the connector body; and,

molding said fuel flange around said connector body for forming a second tortuous path, said second plurality of ribs defining said second tortuous path for impeding passage of hydrocarbon based fuel components between said connector body and said fuel flange.

19. The method as in claim 18, where said second plurality of ribs comprises melt ribs.

20. The method as in claim 18, where said electrical insulating material comprises polyoxymethylene.

21. The method as in claim 18, further comprising:

impregnating a coating over said connector body.

22. The method as in claim 18, wherein said coating comprises dimethylacrylate.

Claims 23-24 (Cancelled)

25. A method of forming a vehicle fuel tank combined fuel flange and electrical connector comprising:

molding a pre-mold housing onto a plurality of electrical conductors to form a pre-mold electrical connector, wherein the electrical conductors comprising ribs such that first tortuous joints are formed between the pre-mold housing and the electrical conductors; and

overmolding a flange member onto the pre-mold electrical connector, wherein the pre-mold housing comprises a series of circumferential ribs on an exterior side which form a second tortuous joint between the flange member and the pre-mold electrical connector.

26. A method as in claim 25 wherein the step of overmolding comprises overmolding a portion of the flange member onto the electrical conductors.

27. A method as in claim 25 wherein the electrical conductors comprise right angle contacts and the pre-mold housing is molded onto a bend of the right angle contacts.

28. A method as in claim 27 wherein the right angle contacts comprise a male contact portion at a first end and a flap contact portion at an opposite second end, and wherein the pre-mold housing is molded onto the flap contact portion.

29. A method as in claim 25 wherein molding of the pre-mold housing comprises forming melt ribs on the ribs of the pre-mold housing.

30. A method as in claim 25 further comprising impregnating the pre-mold housing with a sealing material.

31. A method as in claim 30 wherein the step of impregnating occurs before the flange member is overmolded onto the pre-mold electrical connector.

32. A method as in claim 30 wherein the step of impregnating comprises use of a material which remains substantially uncured in the presence of air.